

# **Local Energy Assurance Planning: 2013 Initiative**

Michigan Public Service Commission

June 4, 2013



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# MPSC's Role in Emergency Management

The energy emergency responsibilities of the MPSC can be grouped into five broad categories:

<b>Development</b>	Develop, administer, and/or coordinate energy emergency contingency plans
<b>Monitoring</b>	Monitor Michigan's energy supply system to detect unusual imbalances that may indicate the potential for an energy emergency and advise the appropriate state officials
<b>Communication</b>	Maintain ongoing contact with the petroleum, natural gas, and electric industries concerning Michigan's energy supply and recovery efforts
<b>Coordination</b>	Act as the communication focal point for federal, state and local activities related to energy emergency preparedness, planning and management
<b>Support</b>	Provide situation reports in the event of an emergency or disaster; support the State Emergency Operations Center (SEOC) as needed.



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# Energy Assurance

The goal of energy assurance planning is to achieve a robust, secure and reliable energy infrastructure that is also resilient — able to restore services rapidly in the event of any disaster.

- Creation of effective responses that minimize consequences and provide a rapid recovery and a return to normal conditions?
- Measures taken to help prevent a disruption from occurring (reduce threats) and defend against those disruptions (reduce vulnerabilities) once they have occurred.



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# Why Now?

## Department of Energy:

In the US, 513 significant outages from 2002 to 2008  
Increased focus on energy assurance planning

## Threats and Hazards

- Aging Energy Infrastructure
- Severe Weather Events
- Cyber Intrusions
- Geopolitical Conflict



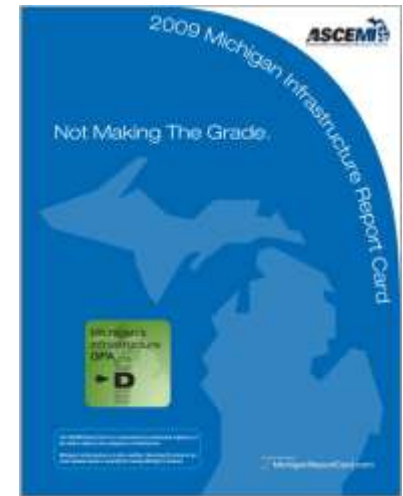
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# Aging Energy Infrastructure



The American Society of Civil Engineers report card gives Michigan's infrastructure a "D" rating:

- **Bridges:** 25% of bridges in Michigan are structurally deficient or functionally obsolete..
- **Dams:** Over 90% of Michigan's 2,581 dams will reach or exceed their design life by 2020.
- **Roads:** 38% of Michigan's roads are in poor or mediocre condition. This costs each Michigan motorist approximately \$357 annually, about \$2 billion.
- **Energy:** Distribution and transmission systems for both electric and natural gas are in need of update.
- **Drinking water:** 11.8 billion needed over the next 20 years.
- **Wastewater:** 3.7 billion is needed over the next 20 years.



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# Severe Weather

June 30, 2012

## Derecho Storm – Eastern US

- Consecutive record heat days
- At least 13 dead
- 3 million without power
- State of Emergency: Ohio, Virginia, West Virginia, Washington, D.C.



October, 2012

## Super storm Sandy – East Coast

- 125 deaths
- 8.5 million energy customers interrupted
- Petroleum shortage in NY and NJ
- \$62 billion in property damage/business loss
- 72,000 homes damaged/destroyed in NJ

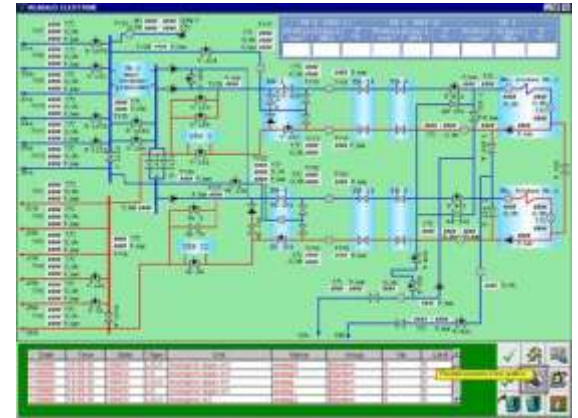


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# Cyber Attack / Intrusion

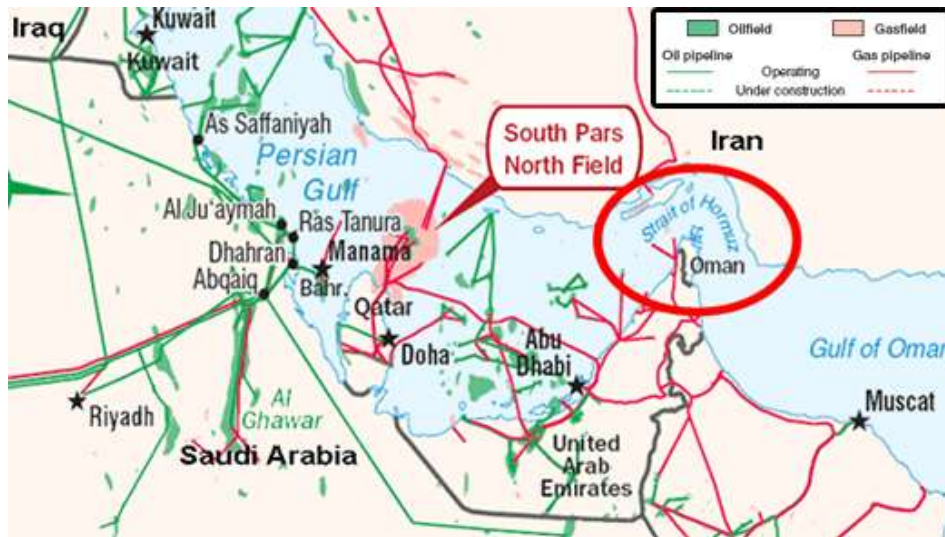
“In 2012 alone, attacks against the energy sector comprised over 40% of all incidents reported to ICS-CERT.” - DHS



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# Geopolitical Conflict

## Straits of Hormuz – World Oil Chokepoint



- Political instability in Iran
- 17 million bbl/day
- 35% of seaborne traded oil
- Nearly 20% of world oil production



# Presidential Policy Directive/ PPD-8: National Preparedness

## “Whole Community Approach”

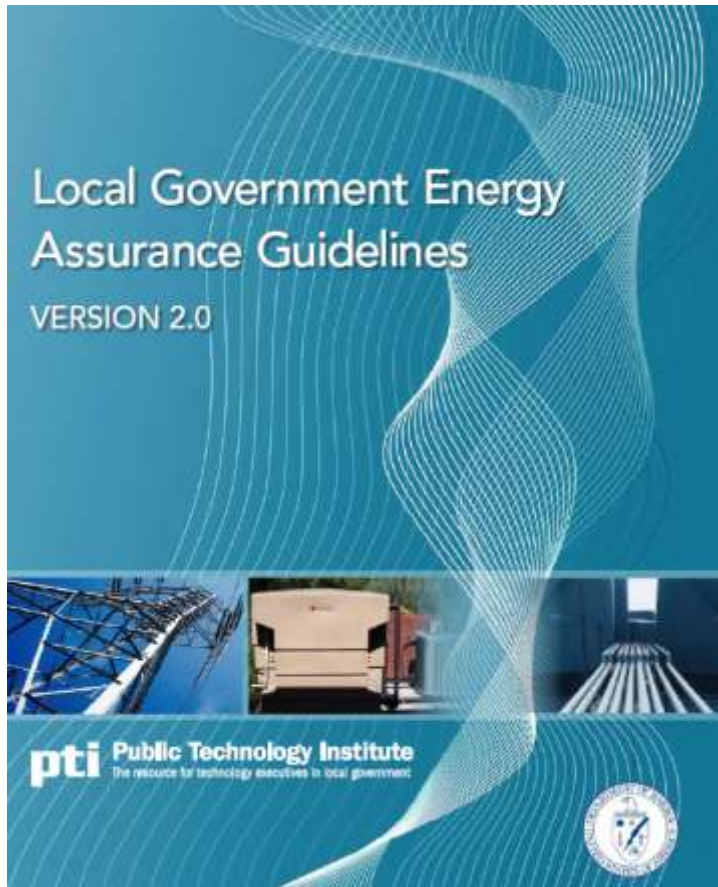
- Individuals
- Businesses
- Local government

“...We cannot only look at the role that government plays, we must also work with the entire community – both the public and private sectors, faith based and non-profit organizations, and most importantly the public”



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# LEAP Federal Guidance



Public Technology  
Institute



<http://energyassurance.us/>

# LEAP, What is it?

A plan to respond and recover from an energy disruption based on a complete understanding of the local jurisdiction. It creates.....

- A general awareness of energy systems and critical infrastructure
- Points of contact with energy suppliers and users
- An understanding of response measures, backup power systems



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# Background

## Emergency Management & Homeland Security Division Michigan State Police

4000 Collins Rd., Lansing, MI 48915  
Phone: (517) 336-6198  
Fax: (517) 333-4967  
[www.michigan.gov/emhsd](http://www.michigan.gov/emhsd)

**2012 LEAP Conferences**  
**2013 District Roll Out**



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# Region 1 Launch

May 22, 2013

- State Police EMHSD
- Hospitals
- Water Facilities
- Universities
- Food Processors
- Petroleum and Natural Gas Pipeline Owners
- Electric Utility Companies
- State Government Offices



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# LEAP Content

- Organizational Structure
- Legal Framework
- Roles and Responsibilities
- **Energy Profile and Suppliers**
- **Energy Users**
- Energy Preparedness Measures
- **Priority Restoration and Allocations**
- **Curtailment Plans and Waivers**
- Crisis Communications
- Notification and Response



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# Key Energy Users

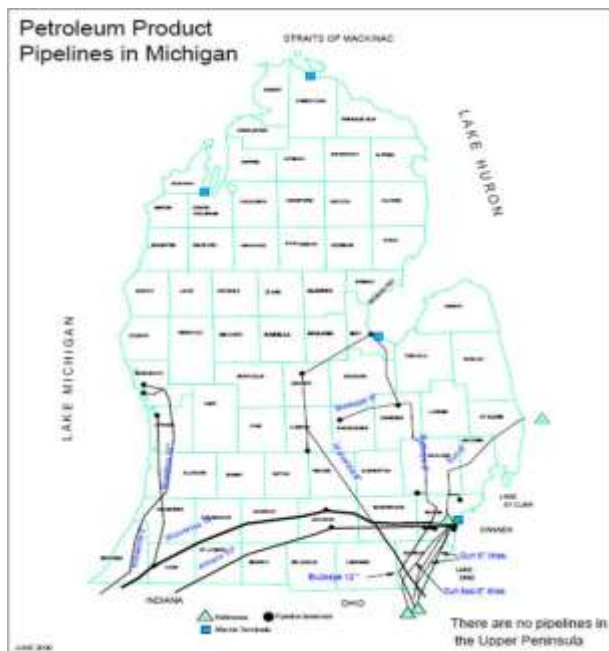
Identifies non-residential user facilities that are highly dependent on a given source of energy to provide an essential community service.



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# Energy Profile and Suppliers

A region's general knowledge of its energy sources, energy usages, and nature of supply fluctuations is a precursor for identifying vulnerabilities in the region's energy system and selecting appropriate response actions.



**LARA** Public Service Commission  
Department of Licensing and Regulatory Affairs

Michigan.gov Home | MPSC Home | Contact MPSC | Storage | FAQ | Search

### Michigan Energy Overview

Michigan Public Service Commission, LARA  
October 2011

**Background**

Michigan is relatively limited in most energy resources and imports 97 percent of its petroleum needs, 62 percent of its natural gas and 100 percent of coal and nuclear fuel from other states and nations. These imports account for about 72 cents of every dollar spent for energy by Michigan's citizens and businesses. Michigan spent a total of \$31.3 billion on all forms of energy in 2009 and of that amount \$22.6 billion was for the energy resources imported from other states and nations.

Michigan's total energy consumption is relatively high, due in part to the State's large population, northern climate and industrial sector. Energy-intensive activities in the State include durable goods manufacturing, such as by the automotive, glass, metal castings, chemical industries, mining and pulp and paper manufacturing/production.

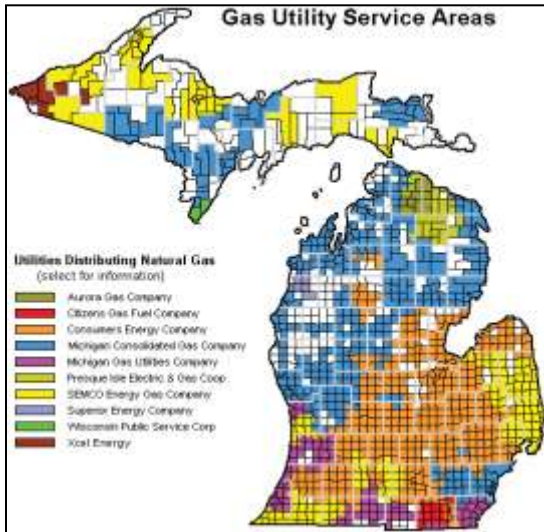
- Michigan Population – 9.9 million, U.S. Rank 8th (2010)
- Michigan Gross Domestic Product - \$368.4 billion in 2009, U.S. Rank 12th
- Crude Oil Reserves – 33 million barrels, 0.2 percent of U.S. total reserves, with 3,000 producing wells (2009)
- Natural Gas Reserves – 2,763 billion cubic feet, share of U.S. 1.0 percent, producing wells 10,600 (2009)
- Natural Gas Use - 746.8 trillion British Thermal Units (BTU) per year, U.S. Rank 9th (2009)



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## Priority Restoration and Allocations

Focuses on more severe energy emergencies where the utility may not have complete information to make decisions regarding which facilities provide an essential service.



Michigan Service Areas of Electric and Gas Utilities

Click on the first letter of the city that you are looking for.  
 Even world lie to download the entire listing in CSV format, click [here](#).  
 (Outscape users should right-click file and select option to download the CSV file.)

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Town  Search  Use " for a wildcard match

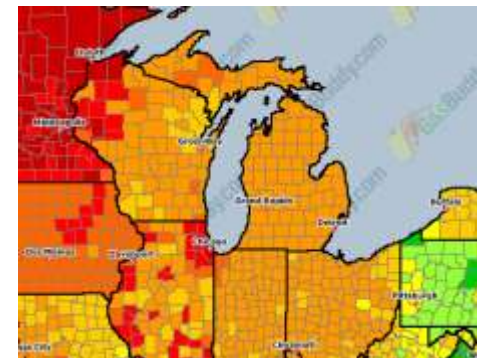
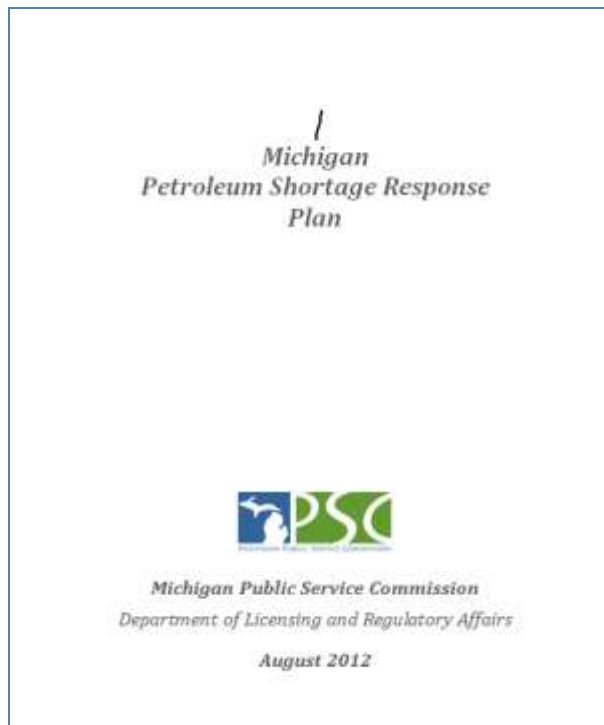
Michigan Town/City	Electric Utility	Gas Utility
Ada	Consumers	MichCo
Adrian	Detroit Edison	
Adrian	Consumers	Consumers
Adrian	Consumers	Chrysler Gas
Albion	U.P. Power	
Albion	Detroit Edison	Consumers
Albion	Consumers	
Albion	Consumers	MichCo
Albion	Consumers	SDMC
Algonac	Consumers	
Algonac	Detroit Edison	SDMC
Algonac	Consumers	NGU
Allen	Consumers	NGU
Allen Park	Detroit Edison	MichCo
Allen	Detroit Edison	
Alma	U.P. Power	
Alma	Consumers	Consumers
Alma	Detroit Edison	Consumers
Alpena	Alpena Power	MichCo
Alpena	Wisconsin Hardw	
Alpena	U.P. Power	



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# Curtailment Plans and Waivers

Informative section highlighting response measures available for petroleum, electrical and natural gas emergencies

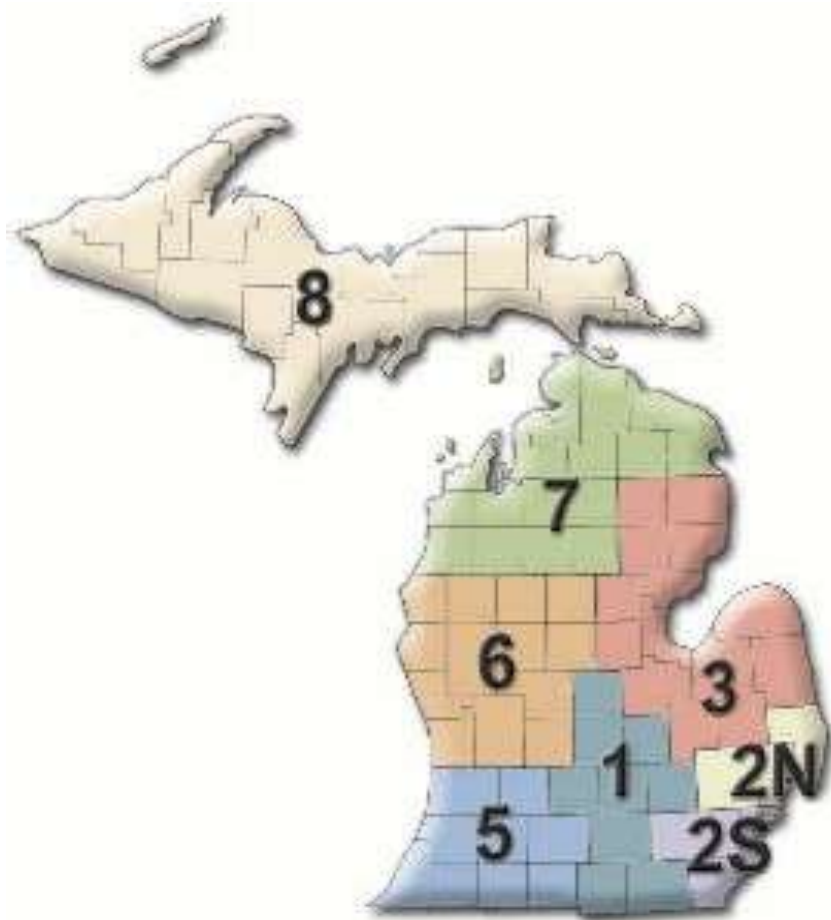


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# LEAP Template for Michigan

- Template developed based on Department of Energy guidance
- Input needed for sections with region specific data
- Regional planning teams will work to complete the document



# **10 energy-related considerations for achieving a resilient water supply systems?**



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# 1. Get to know your local energy suppliers.

- Natural Gas
- Electricity
- Petroleum
- Propane



## 2. Plan for outages lasting months

2003 NE Power Outage

Days



Hurricanes / Super Storms

Weeks



Terrorist Attacks – High Voltage Transformers

– Weeks to Months



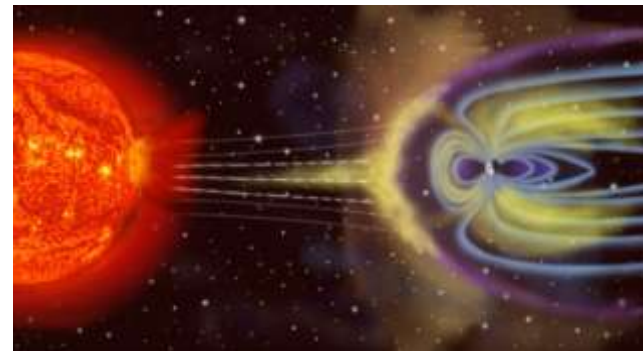
Cyber Attack – Multi-wave Attack

Months



Coronal Mass Ejection / Electro Magnetic Pulse

Months to Years



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### **3. Identify those energy-dependent processes key to providing any essential community service**

- Pumps
- SCADA Systems
- Groundwater Wellheads



## 4. Select appropriate backup power generators:

	Diesel <sup>1</sup>	Natural Gas <sup>2</sup>	Propane <sup>3</sup>	Gasoline
Fuel Storage	+	+	+	-
Fuel Delivery Method	-	+	-	-
Generator Availability	+	-	-	+
Generator Portability	-	-	-	+

<sup>1</sup> Assume a consumption rate of 0.07 gallons per hour for every 1kW of power generated.

<sup>2</sup> Assumes access to a pipeline. Can use propane as a backup fuel, but requires an adapter.

<sup>3</sup> Use the generator specification sheet to calculate expected runtime for a given load and propane tank capacity.

U.S.E.P.A



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## 5. Consider the right location for backup power generators:

- Where fuel source unlikely to contaminate source waters.
- Locate above potential floodwater levels.
- Consider a weatherproof enclosure.
- Install on flat concrete surface in secure area.

U.S.E.P.A



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## 6. Consider appropriate hookup options for backup power generators:



- TRANSER SWITCHES allow for ease in switching back and forth between commercial and generator power sources.



- CAMLOCKS allow you to connect a mobile generator directly to a critical piece of equipment.



- VARIABLE FREQUENCY DRIVES can supply power under a variety of horsepower demands.

U.S.E.P.A



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## 7. Contract for Emergency Fuel Supplies: Key Questions

- Can they be contacted 24/7/365?
- Do they have sufficient trucks and drivers?
- Do they have a Fuel Quality Control Program?
- Does their truck loading require electricity?
- How far must they travel for deliveries?
- Given the size of their customer base, what assurances are there sufficient fuel supply is available to meet their contracted needs?



## 8. Join mutual aid consortiums



The screenshot shows the MIWARN website. The header features the MIWARN logo with the tagline 'utilities helping utilities' and 'Michigan Water/Wastewater Agency Response Network'. The navigation bar includes links for Home, Mutual Aid Agreement, MIWARN Regions, Links/Downloads, and Contact. The date 'Friday, May 24, 2013' is displayed. The 'Active Emergencies' section states 'There are no active emergencies at the moment!' and provides instructions for requesting assistance in an emergency. A large image of a water main break is shown on the right, with a caption: 'Water main breaks can create a dangerous situation for your community'. The footer includes a link to 'Join the MIWARN today' and a section for 'Already a Member?'.

MIWARN  
utilities helping utilities  
Michigan Water/Wastewater Agency Response Network

Home Mutual Aid Agreement MIWARN Regions Links/Downloads Contact

Friday, May 24, 2013

**Active Emergencies**

There are no active emergencies at the moment!

In an emergency, utilities may request assistance from other utilities by:

1. Logging onto the website.
2. Accessing the "Broadcast Emergencies" subdirectory through the "Members" area on the navigation bar.

Join the MIWARN today to become a part of a statewide network of water and wastewater utilities for emergency response. Access to the "Members Only" area will be provided following review of registration information.

Already a Member?

Water main breaks can create a dangerous situation for your community

[www.miwarn.org](http://www.miwarn.org)



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## 9. Exercise Water Demand Reduction Plans



- Utilities
- Community Planners
- Citizen Groups
- High-Demand Users
- Emergency Management Personnel
- Law Enforcement
- Fire Departments



## 10. Support your Local Energy Assurance Planning Team

- Participate in any planning sessions
- Provide system information upon request
- Convey recommendations to utility managers



**Questions?**

**David Binkley**

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**517-241-9786**



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